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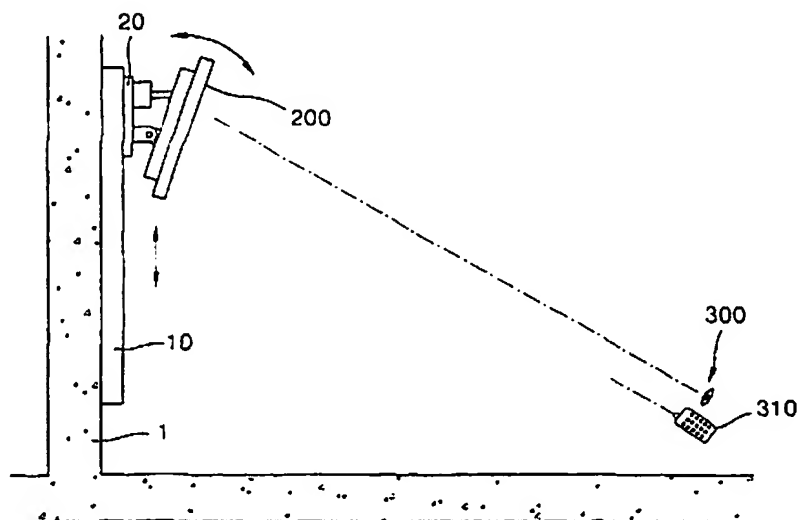
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(54) Title: LOCATION CONTROLLER FOR TV RECEIVER



(57) Abstract: The present invention relates to a position controller in a TV receiver for adjusting its height and angle. The apparatus includes a frame 10 extended along a wall 1 up and down, a movable block 20 supported to the frame to move along the frame 10 whereon TV receiver 200 is attached, and an elevating means 600 for elevating the movable block 20 along the frame 10. The elevating means 600 includes a screw axis 11 supported to the frame 10 to be elevated along the frame 10 and coupling the movable block 20, guide rods 12, 13 supported to the frame 10 in a line with the screw axis 11, and a driving motor 400 for rotating the screw axis 11. The driving motor 400 has proximity sensors at the both ends of the frame 10 to stop the operation of the driving motor 400 if the movable block 20 closes the both ends of the frame 10. The driving motor 400 is also controlled with the remote controller 310. An angular controller 350 adjusts an angle of the TV receiver 200 against the movable block 20. Thus a viewer can easily adjust the height and angle of the TV receiver.

LOCATION CONTROLLER FOR TV RECEIVER

Technical Field

The present invention relates to a position control apparatus
5 in a TV receiver. More particularly, the present invention relates to
a position control apparatus in a TV receiver for moving the TV
receiver upward and downward and making the receiver rotary, thereby
allowing a viewer to watch a TV in a comfortable state.

10 Background Art

Recently, with a trend of high functions, TV receiver products
having special functions rather than simple functions have been
developing. In particular, consumers increasingly desire to watch TV
in a more comfortable state and to hear more realistic acoustic sound.

15 Therefore, functions for satisfying the consumers' needs have
been developed. The television may be classified into a CRT type TV
having a Braun-tube and a PDP type TV made of a thin film. In recent
years, a PDP TV that has a compact size and is irrespective of a
location has been spotlighted as a next-generation TV.

20 However, a stand type PDP television has to be disposed on a
table, etc. like an existing CRT television. Thus, it has a problem
that it does not utilize the space properly. For this reason, a wall
tapestry type PDP TV has recently been used a lot.

Fig. 1 is a schematic view illustrating the structure for controlling an angle of a TV receiver according to a prior art.

Referring to Fig. 1, the conventional PDP television includes an angular control unit 112 fixed to a wall 1 and having a plurality of fixing grooves 113, a stationary bracket 110 having a fitting groove 114 at its bottom, a rotary bracket 120 having one side attached to a PDP television and the bottom inserted into the fitting groove 114 of the stationary bracket 110, and a link member 130 having one front end hinged to the rotary bracket 120 and the other front end inserted into the angular control unit 112 of the stationary bracket 110.

Therefore, in a state where the stationary bracket 110 is fixed to the wall and the PDP television is attached to the rotary bracket 120, the rotary bracket 120 is inserted into the fitting groove 114 of the stationary bracket 110 and the one front end of the link member 130 connected to the rotary bracket 120 is inserted into the fixing groove 113 of the stationary bracket 110. Thereby, an angle of the PDP television can be controlled from the wall.

In such a television, however, in order to control the angle of the television, a viewer must manipulate the television directly and manually. This makes the viewer troublesome.

Furthermore, as the stationary bracket 110 is firmly fixed to the wall, it is impossible to adjust the height of the television.

Disclosure of Invention

Accordingly, the present invention has been made in view of the above problems, and it is an object of the present invention to
5 provide a position control apparatus in a TV receiver that allows a viewer to adjust the height of the TV receiver.

Another object of the present invention is to provide a position control apparatus in a TV receiver that remotely controls the height and angle of the TV receiver.

10 To achieve the above objects, according to the present invention, there is provided a position control apparatus in a TV receiver, comprising a frame that is extended along a wall upward and downward; a movable block that is supported to the frame so that it can move along the frame upward and downward, wherein a TV receiver is
15 attached to the movable block; and an elevating means for elevating the movable block against the frame.

In the above, the elevating means comprises a screw axis that is supported to the frame so that it is elevated along the frame upward and downward, wherein the movable block is coupled to the screw
20 axis; guide rods supported to the frame in line with the screw axis, wherein the movable block is movably coupled to the guide rods; and a driving motor for rotatably driving the screw axis, whereby the movable block is elevated by means of forward and backward rotary

driving of the driving motor.

Another elevating means comprises a screw axis having guide slot holes lengthily formed on the frame and supported to the frame rotatably upward and downward, wherein movable blocks are coupled to the screw axis; a guide roller rotatably coupled to the movable blocks and slidably coupled to the guide slot holes; and a driving motor for rotatably driving the screw axis, whereby the movable block is elevated by means of forward and backward rotary driving of the driving motor.

Still another elevating means comprises first and second rotating bodies having guide slot holes lengthily formed in the frame, wherein the first and second rotating bodies are rotatably disposed in the upper and lower ends of the frame, respectively; track bodies that revolve on the first and second rotating bodies in an infinite track and are fixed to the movable block; and a driving motor for rotatably driving the first and second rotating bodies to move the track bodies rotatably upward and downward, whereby the movable block is elevated by forward and backward rotary driving of the driving motor.

Furthermore, the position control apparatus in the TV receiver further comprises an angular control means for controlling an angle of the TV receiver against the movable block.

In the above, a rear lower side of the TV receiver and a lower side of the movable block corresponding to it are rotatably coupled

and wherein the angular control means comprises a rotary central body rotated by a rotary motor and having a vertical protrusion at its end; a link member having one end rotatably coupled to the end of the vertical protrusion; and a lever member having one end rotatably
5 connected to the other end of the link member and the other end fixed on the TV receiver.

Further, the position control apparatus in the TV receiver further comprises a remote controller for remotely controlling the driving motor and the rotary motor.

10 According to the present invention, the position control apparatus in the TV receiver allows a viewer to easily control the height and angle of the TV receiver using the elevating means and the angular control means.

15 Brief Description of Drawings

Further objects and advantages of the invention can be more fully understood from the following detailed description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a schematic view illustrating the structure for
20 controlling an angle of a TV receiver according to a prior art;

Fig. 2 shows a room where a position control apparatus in a TV receiver is installed according to the present invention;

Fig. 3 is a schematic view shown to explain the connection

relationship between the TV receiver and the movable block:

Figs. 4a, 4b and 4c are perspective views illustrating angular control units 350, 351 and 352;

Fig. 5a and Fig. 5b show how the angle of the TV receiver 200 is controlled;

Fig. 6 is a schematic view illustrating an elevating means 600 according to one embodiment of the present invention;

Fig. 7 and Fig. 8 are schematic views illustrating elevating means 700 and 800 according to another embodiment of the present invention; and

Fig. 9 is a schematic view illustrating an elevating means 900 according to still another embodiment of the present invention.

Best Mode for Carrying Out the Invention

The present invention will now be described in detail in connection with preferred embodiments with reference to the accompanying drawings.

A position control apparatus in a TV receiver allows a viewer to easily control the height and angle of the TV receiver to a viewer's taste.

One example of such a position control apparatus in a TV receiver will now be described in detail with reference to Fig. 2 to Fig. 6. The apparatus includes a frame 10 that is extended along a

wall 1 upward and downward, a movable block 20 that is supported to the frame so that it can move along the frame 10 upward and downward, wherein a TV receiver 200 is attached to the movable block 20, and an elevating means 600 for elevating the movable block 20 against the
5 frame 10.

The elevating means 600 (see Fig. 6) includes a screw axis 11 that is supported to the frame 10 so that it is elevated along the frame 10 upward and downward, wherein the movable block 20 is coupled to the screw axis 11, guide rods 12 and 13 supported to the frame 10
10 in line with the screw axis 11, wherein the movable block 20 is movably coupled to the guide rods 12 and 13, and a driving motor 400 for rotatably driving the screw axis 11.

The driving motor 400 has a decelerator 410 for control the screw axis 11 to rotate at an adequate rate.

15 In such elevating means 600, the movable block 20 is elevated along the guide rods 12 and 13 and the screw axis 11 according to forward and backward rotary driving of the driving motor 400.

At this time, the driving motor 400 has a proximity sensor (not shown) at upper and lower ends of the frame 10. Thus, if the movable
20 block 20 approaches the upper and lower ends of the frame 10, the proximity sensor is driven to stop operating the driving motor 400. Further, the driving motor 400 is also remotely controlled by the remote controller 310. Accordingly, a viewer 300 can adjust the high

and the low of the TV receiver 200 to his or her taste.

Furthermore, the position control apparatus in the TV receiver according to the present invention has an angular control means 350 for controlling the angle of the TV receiver 200 against the movable
5 block 20, as shown in Fig. 4a. The angular control means 350 includes a rotary central body 30, a vertical protrusion 31 and a link member 32. Meanwhile, Fig. 4b shows another angular control means 351. The angular control means 351 shown in Fig. 4b includes a disk type crank axis having a different shape from the rotary central body 30 shown in
10 Fig. 4a. Therefore, although a rotary motor 500 does not rotate forward and backward, a viewing angle of the TV receiver 200 can be controlled by 360° rotation of the disk type crank axis. Fig. 4c shows still another angular control means 352. The angular control means 352 has a linear motor that is directly driven in a straight
15 line instead of the rotary motor 500 shown in Figs 4a and 4b. As the linear motor is used, the viewing angle of the TV receiver 200 can be adjusted even if the rotary central body 30, the vertical protrusion 31 and the link member 32 as shown in Fig. 4a are not used.

There are shown the angular control means 350, 351 and 352 in
20 Fig. 3, Fig. 4a to Fig. 4c, Fig. 5a and Fig. 5b. Of them, only the angular control means 350 shown in Fig. 4a will be below described in order to avoid redundancy.

The TV receiver 200 and the movable block 20 corresponding to it

are rotatably coupled by the coupling of reciprocal hinge pieces 21 and 201. The angular control means 350 includes a rotary central body 30 rotated by the rotary motor 500 and having a vertical protrusion 31 at its end, a link member 32 having one end rotatably coupled to the
5 end of the vertical protrusion 31, and a lever member 33 having one end rotatably connected to the other end of the link member 32 and the other end fixed on the TV receiver 200.

As shown in Fig. 5a and Fig. 5b, such angular control means 350 rotates around the hinge pieces 201 and 21 by means of a joint action
10 of the rotary central body 30, the link member 32 and the lever member 33 due to forward and backward driving of the rotary motor 500. Likewise, the rotary motor 500 is remotely controlled by the remote controller 310 that has a light-emitting sensor. Accordingly, the viewer 300 can adjust the viewing angle of the TV receiver 200 to
15 one's taste.

Although it has been described that the viewing angle of the TV receiver 200 is adjusted upward and downward, those skilled in the art will appreciate that the viewing angle of the TV receiver 200 can also be adjusted right and left.

20 By remotely controlling the driving motor 400 and the rotary motor 500 forward and backward using the remote controller 310, it is possible to adjust the height and angle of the TV receiver 200.

Fig. 7 and Fig. 8 show another embodiments of the elevating

means. The elevating means 700 and 800 includes a screw axis 11 having guide slot holes 14 and 15 lengthily formed on the frame 10 and supported to the frame 10 rotatably upward and downward, wherein movable blocks 20a and 20b are coupled to the screw axis 11, a guide
5 roller 16 rotatably coupled to the movable blocks 20a and 20 and slidingly coupled to the guide slot holes 14 and 15, and a driving motor 400 for rotatably driving the screw axis 11.

The movable block 20a is coupled to the screw axis 11 and the movable block 20b has the TV receiver 200 installed thereon.
10 Furthermore, the driving motor 400 has a decelerator 410 for rotating the screw axis 11 at an adequate rate.

The elevating means 700 and 800 make the elevating operation of the movable block 20 further smooth by means of the guide roller 16 that moves along the guide slot holes 14 and 15.

15 Furthermore, in the present invention, the angle of the TV receiver 200 can be adjusted against the movable block 20, like in the above embodiment. In this case, as its construction is same as that of the previous embodiment, detailed description on it will be omitted for simplicity. Further, the driving motor 400 and the rotary motor
20 500 have proximity sensors (not shown) at the upper and lower ends of the frame 10. Thus, if the movable block 20 approaches the upper and lower ends of the frame 10, proximity sensors are driven to stop operating the driving motor 400 and the rotary motor 500. Further,

the driving motor 400 and the rotary motor 500 are also remotely controlled by the remote controller 310.

Fig. 9 shows still another embodiment of the elevating means. An elevating means 900 includes first and second rotating bodies 17 and 18 having guide slot holes 14 and 15 lengthily formed in the frame 10, wherein the first and second rotating bodies 17 and 18 are rotatably disposed in the upper and lower ends of the frame 10, respectively, track bodies 19a and 19b that revolve on the first and second rotating bodies 17 and 18 in an infinite track and are fixed to the movable block 20, and a driving motor 400 for rotatably driving the first and second rotating bodies 17 and 18 to move the track bodies 19a and 19b rotatably upward and downward.

The first and second rotating bodies 17 and 18 may be chain sprockets and the track bodies 19a and 19b may be chains. Furthermore, the first and second rotating bodies 17 and 18 may be pulleys and the track bodies 19a and 19b may be ropes.

Such elevating means 900 is designed to move along with upward and downward movements of the track bodies 19a and 19b by the driving motor 400 and the decelerator 410 since the movable block 20 is fixed to the track bodies 19a and 19b being chains or ropes.

Even in this embodiment, the angle of the TV receiver 200 against the movable block 20 can be adjusted. In this case, as such construction is same as the above construction, detailed description

on it will be omitted for simplicity. Furthermore, in the driving motor 400 and the rotary motor 500, the proximity sensors (not shown) are disposed in the upper and lower ends of the frame 10. Thus, if the movable block 20 approaches the upper and lower ends of the frame 10, the proximity sensors are driven to stop operating the driving motor 400 and the rotary motor 500. Further, the driving motor 400 and the rotary motor 500 are also remotely controlled by the remote controller 310.

It is to be understood that the position control apparatus in the TV receiver 200 according to the present invention is not limited to the above embodiments, but may be modified in various ways without departing from the scope and spirit of the present invention. For example, it has been described above that the angular control means is designed to rotate the TV receiver by means of a joint action of the rotary motor. However, the movable block may be fixed to a cylinder and the TV receiver may be connected to the end of a cylinder rod, so that the TV receiver can be rotated by the operation of the cylinder.

Industrial Applicability

According to the present invention described above, the height of a TV receiver can be adjusted by means of a driving motor that is remotely controlled. Therefore, the present invention has an effect that it can provide a viewer convenience.

Furthermore, according to the present invention, a viewer can
adjust an angle of a TV receiver to one's taste.

While the present invention has been described with reference
to the particular illustrative embodiments, it is not to be restricted
5 by the embodiments but only by the appended claims. It is to be
appreciated that those skilled in the art can change or modify the
embodiments without departing from the scope and spirit of the present
invention.

What Is Claimed Is:

1. A position control apparatus in a TV receiver, comprising:
a frame that is extended along a wall upward and downward;
a movable block that is supported to the frame so that it can
5 move along the frame upward and downward, wherein a TV receiver is
attached to the movable block; and
an elevating means for elevating the movable block against the
frame.

10 2. The position control apparatus in the TV receiver as claimed
in claim 1, wherein the elevating means comprises:

a screw axis that is supported to the frame so that it is
elevated along the frame upward and downward, wherein the movable
block is coupled to the screw axis;

15 guide rods supported to the frame in line with the screw axis,
wherein the movable block is movably coupled to the guide rods; and

a driving motor for rotatably driving the screw axis,

whereby the movable block is elevated by means of forward and
backward rotary driving of the driving motor.

20

3. The position control apparatus in the TV receiver as claimed
in claim 1, wherein the elevating means comprises:

a screw axis having guide slot holes lengthily formed on the
frame and supported to the frame rotatably upward and downward,

wherein movable blocks are coupled to the screw axis;

a guide roller rotatably coupled to the movable blocks and
slidingly coupled to the guide slot holes; and

a driving motor for rotatably driving the screw axis.

5 . whereby the movable block is elevated by means of forward and
backward rotary driving of the driving motor.

4. The position control apparatus in the TV receiver as claimed
in claim 1, wherein the elevating means comprises:

10 first and second rotating bodies having guide slot holes
lengthily formed in the frame, wherein the first and second rotating
bodies are rotatably disposed in the upper and lower ends of the frame,
respectively:

track bodies that revolve on the first and second rotating
15 bodies in an infinite track and are fixed to the movable block; and

a driving motor for rotatably driving the first and second
rotating bodies to move the track bodies rotatably upward and downward,

whereby the movable block is elevated by forward and backward
rotary driving of the driving motor.

20

5. The position control apparatus in the TV receiver as claimed
in any one of claims 1 to 4, further comprising an angular control
means for controlling an angle of the TV receiver against the movable
block.

25

6. The position control apparatus in the TV receiver as claimed in claim 5, wherein a rear lower side of the TV receiver and a lower side of the movable block corresponding to it are rotatably coupled and

5 wherein the angular control means comprises:

 a rotary central body rotated by a rotary motor and having a vertical protrusion at its end;

 a link member having one end rotatably coupled to the end of the vertical protrusion; and

10 a lever member having one end rotatably connected to the other end of the link member and the other end fixed on the TV receiver.

7. The position control apparatus in the TV receiver as claimed in claim 6, further comprising a remote controller for remotely
15 controlling the driving motor and the rotary motor.

8. The position control apparatus in the TV receiver as claimed in claim 5, wherein the angular control means is a linear motor.

20 9. The position control apparatus in the TV receiver as claimed in claim 6, wherein the rotary central body and the link member consists of a disk shape crank axis.

FIG 1

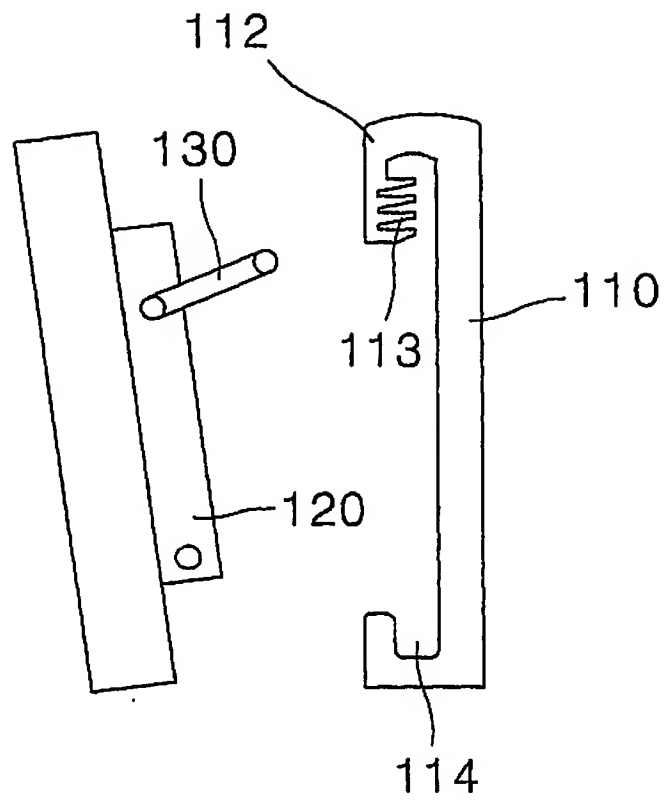


FIG 2

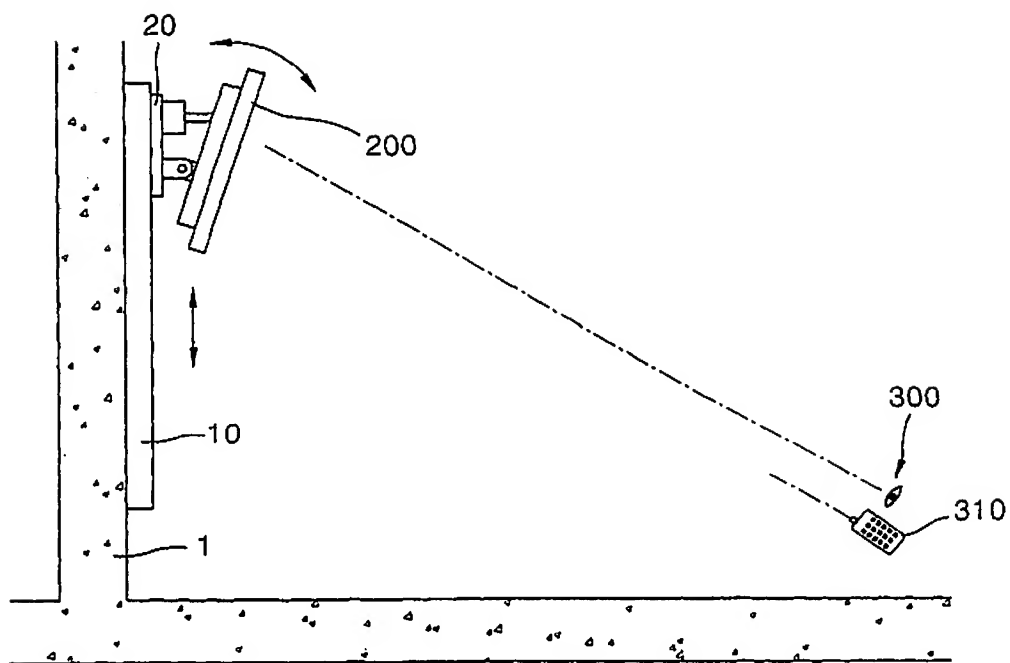


FIG 3

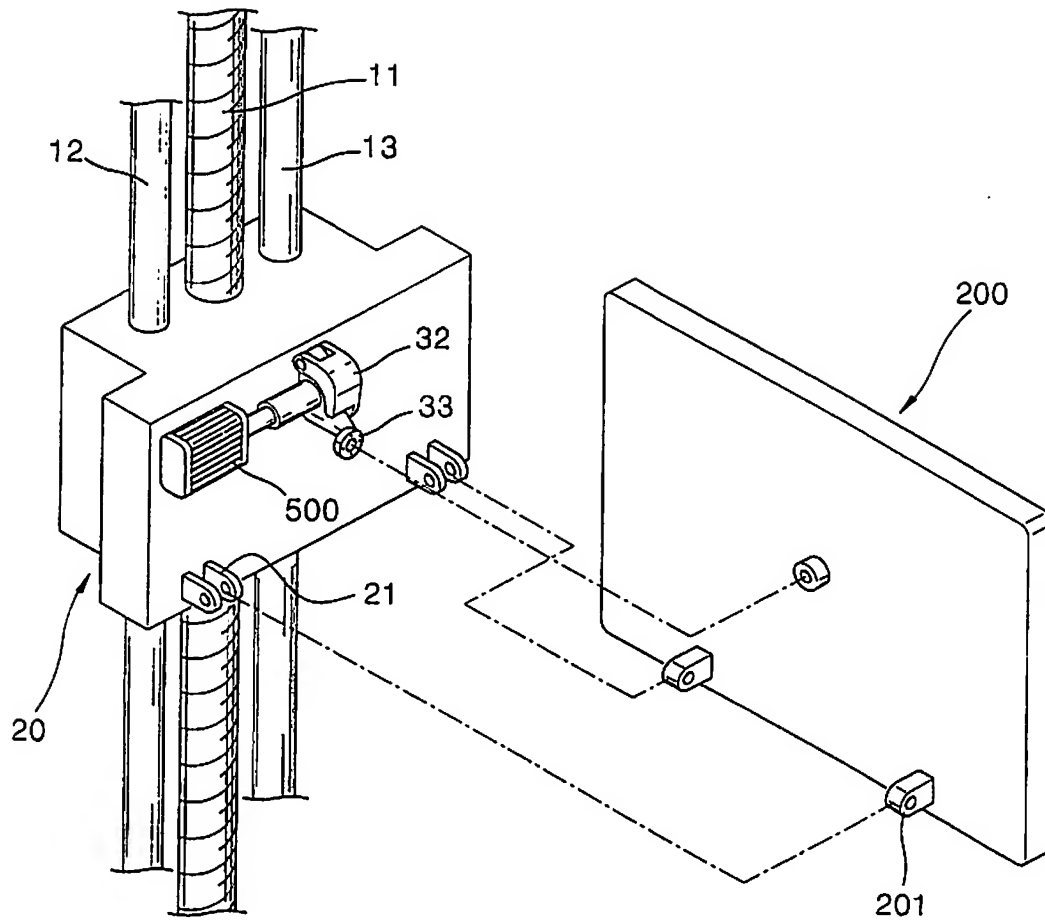


FIG 4a

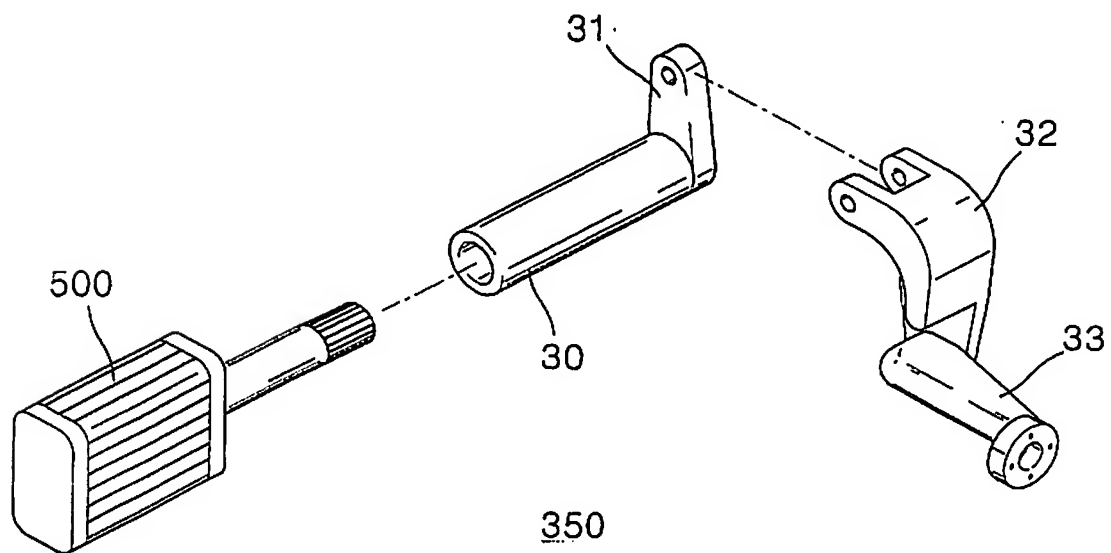


FIG 4b

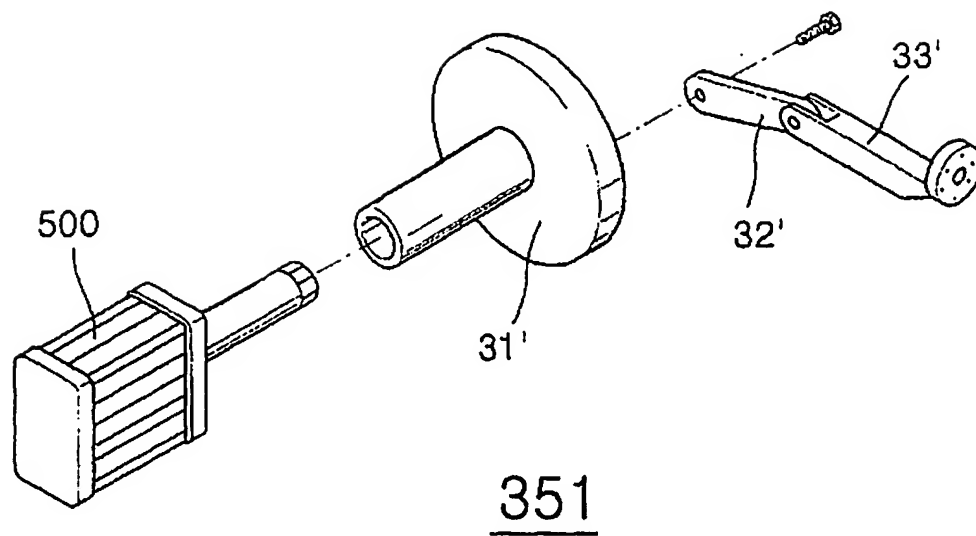


FIG 4c

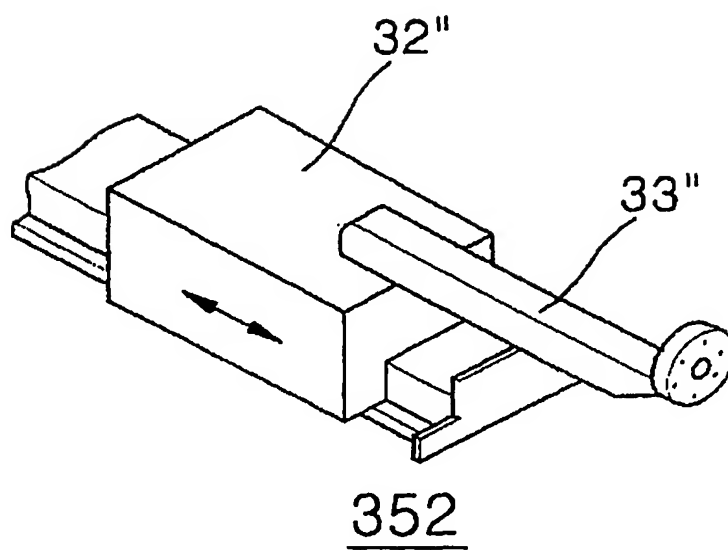


FIG 5a

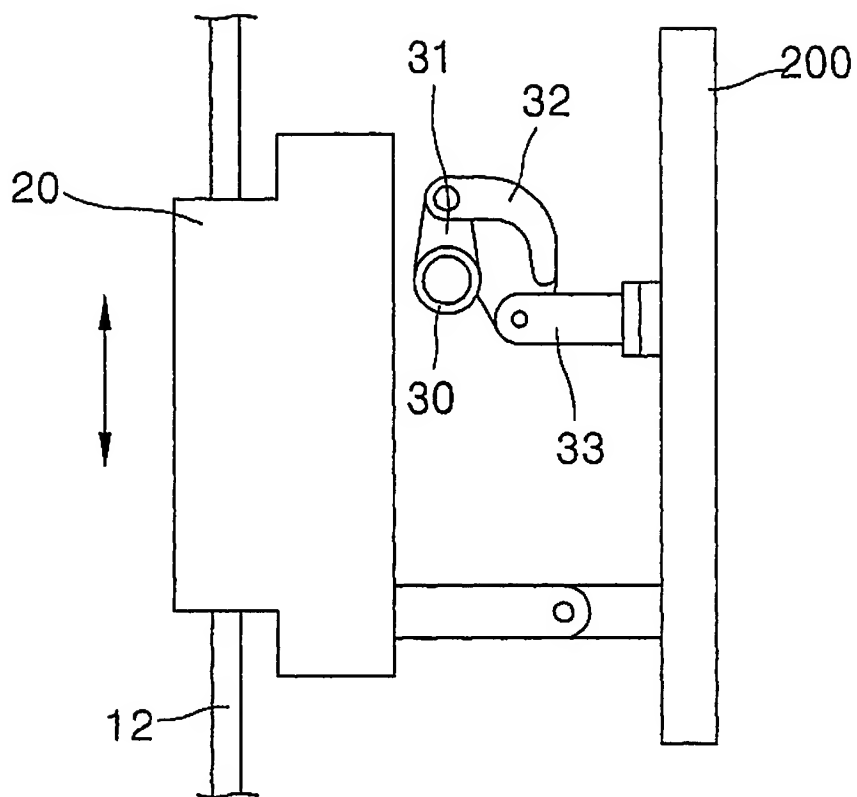


FIG 5b

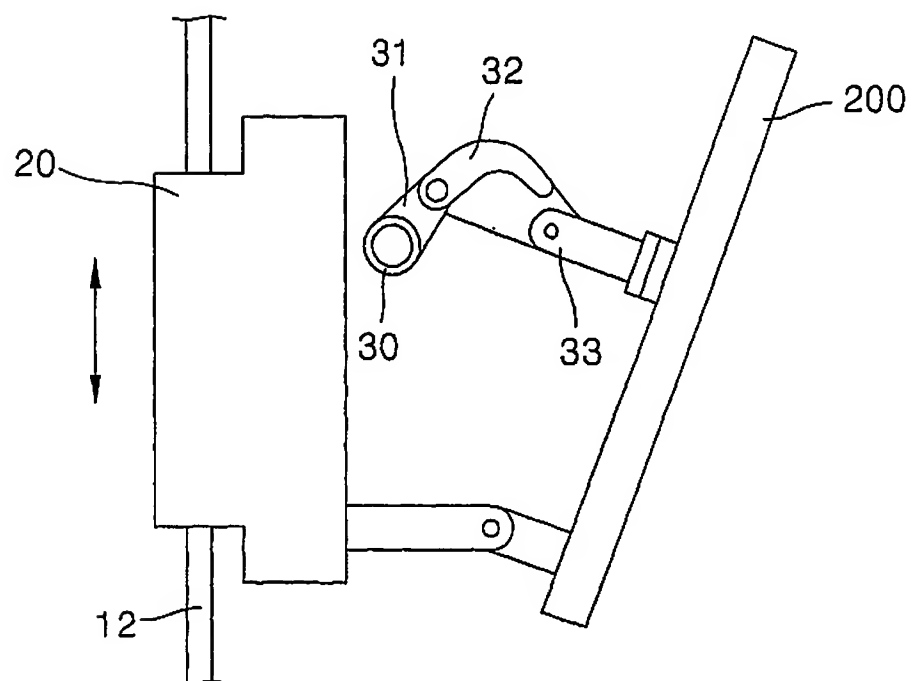
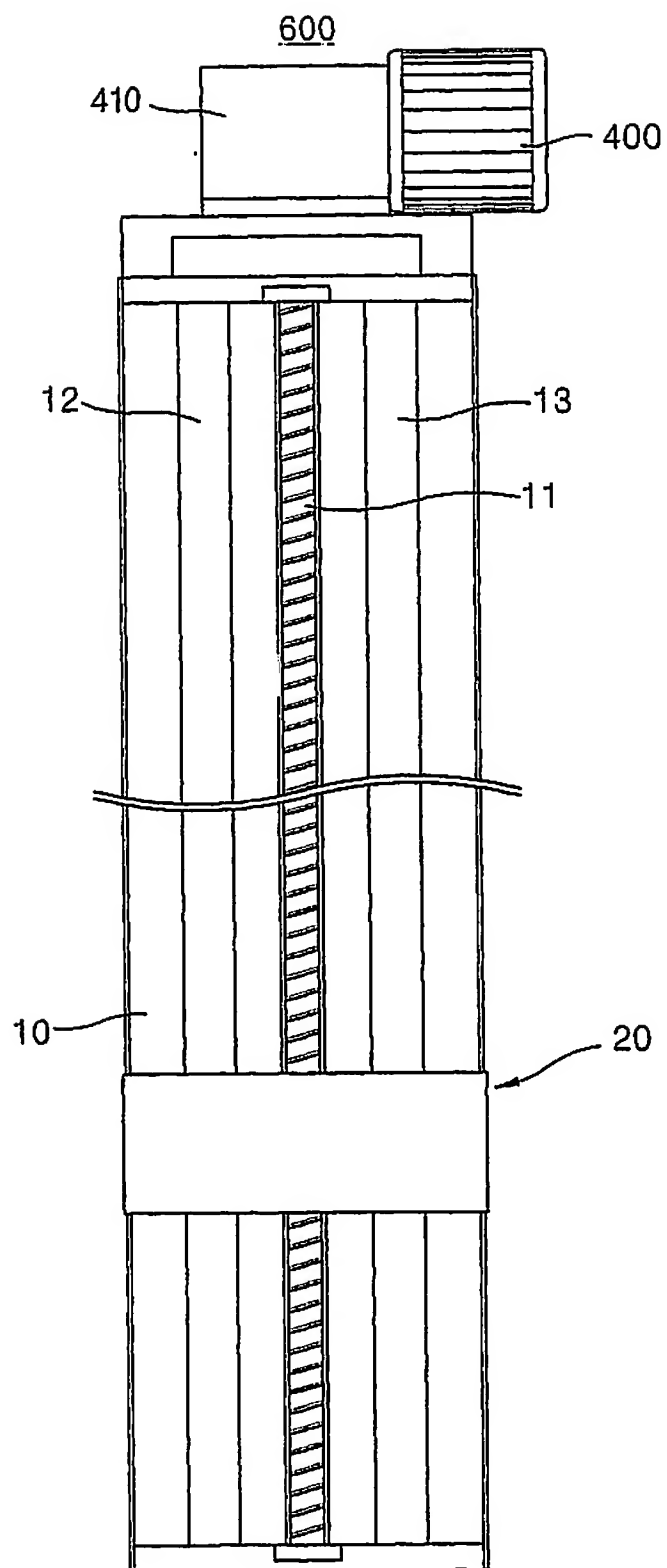


FIG 6



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FIG 7

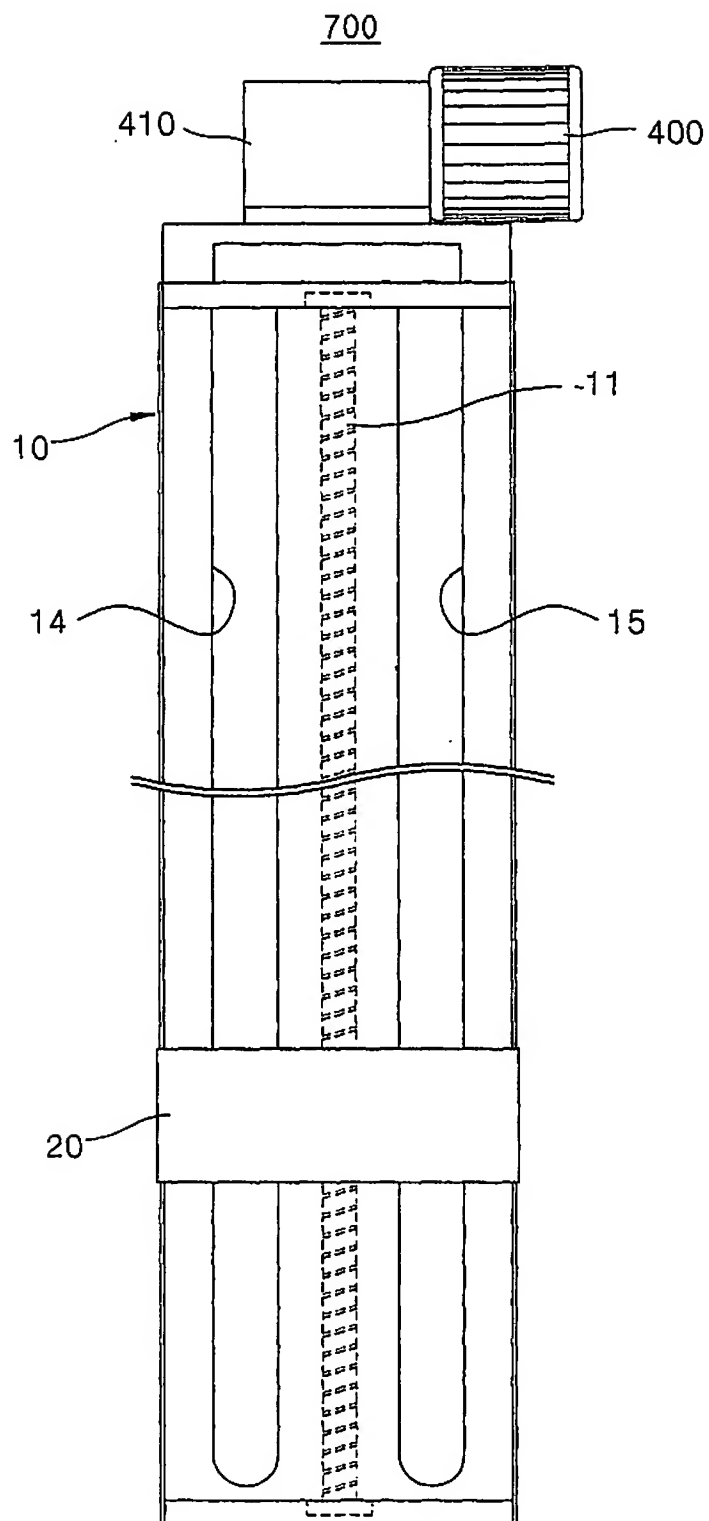


FIG 8

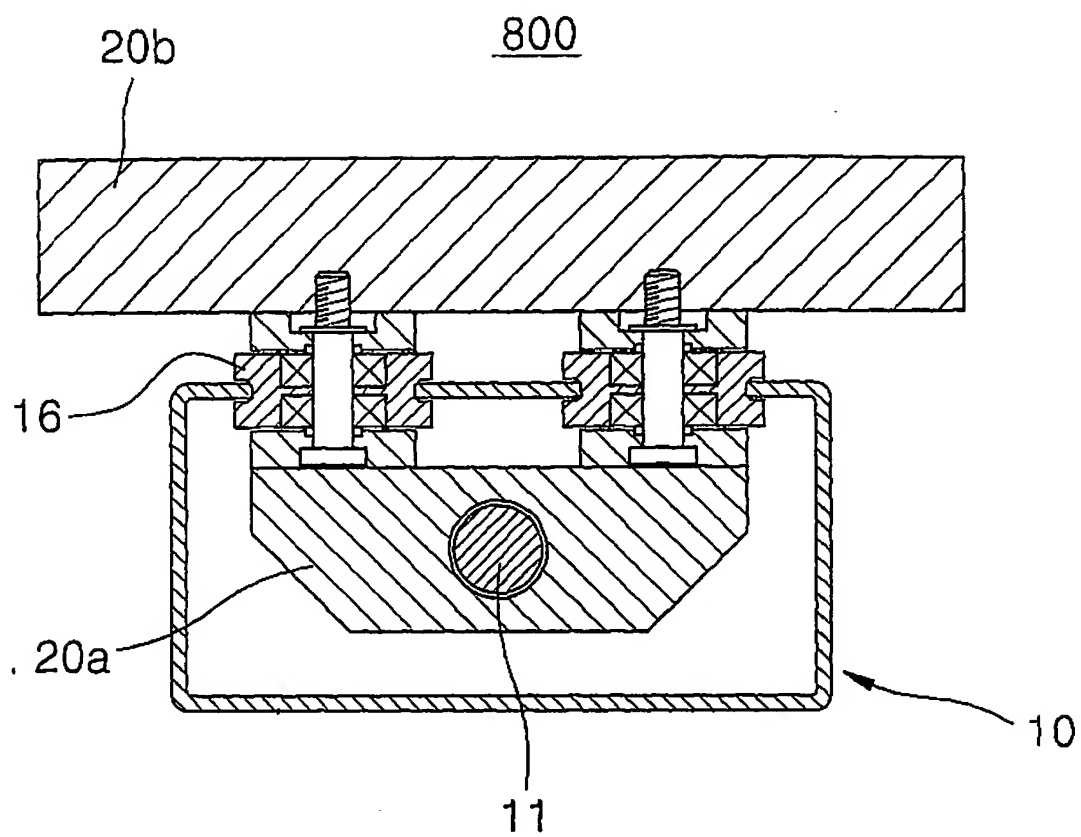
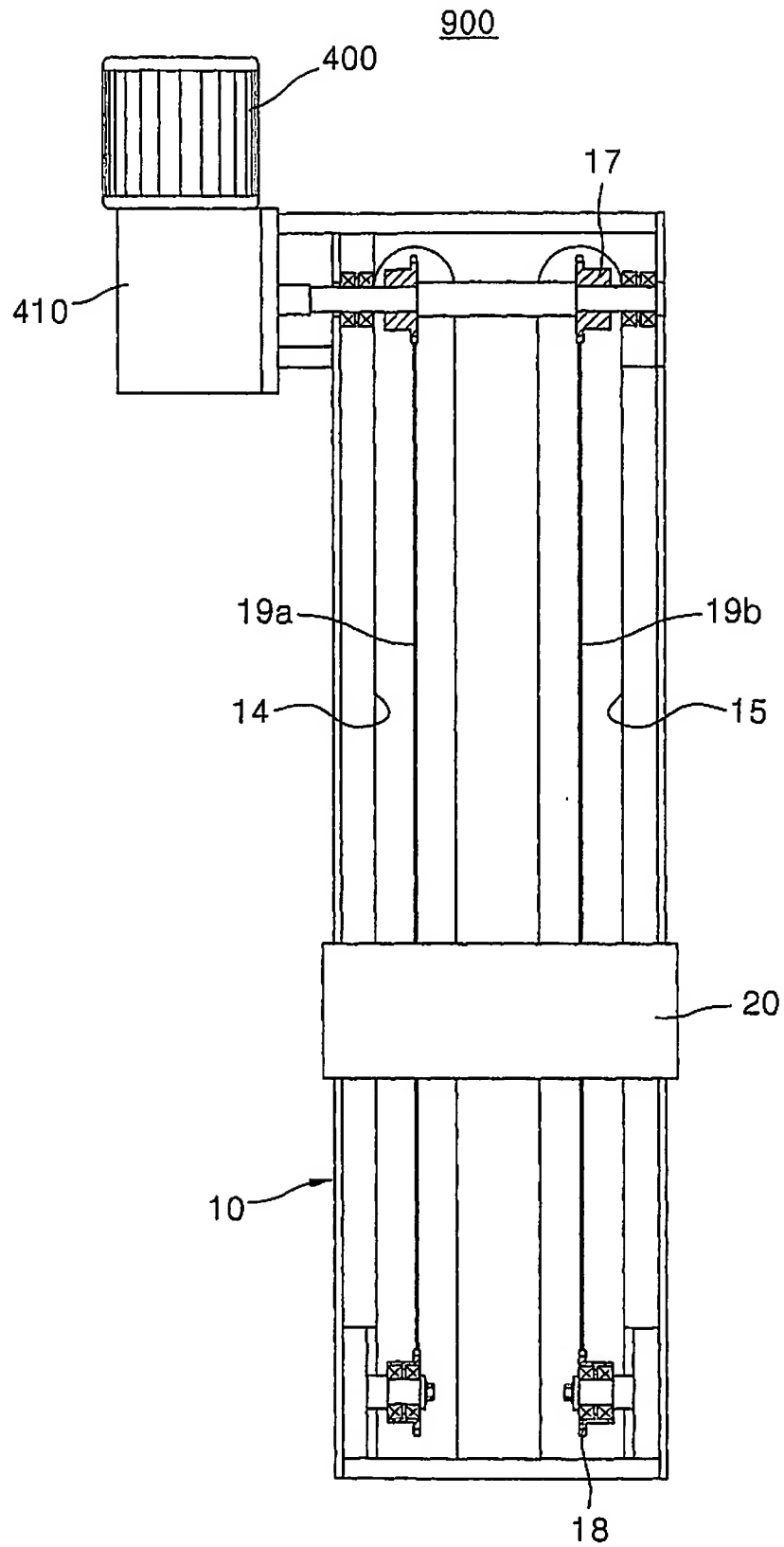


FIG 9



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2003/002181

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04N 5/655

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975.

Korean Utility models and applications for Utility models since 1975

Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NPS, PAJ, Delphion, USPTO, KIPRIS, TIMEPASS : "Television, TV, PDP, LCD, mov*, chang*, transfer, wall, cell"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 2002-041999 A (LEE MAN TAEK.) 5 JUNE 2002 Abstract, Claims 1-3 Fig. 1 - 4	1 - 3
Y	KR 20-0181839 Y (DOOBAE SYSTEM CO.) 2 MARCH 2000 Abstract, Claims 1, 3, 4 Fig. 4 - 7 Fig. 1- 3	1 - 3 4
Y	JP 1-74682 U (SANYO) 19 MAY 1989 Abstract, Fig. 1	4
Y	KR 20-0250276 U (WIDE CO.) 28 SEPTEMBER 2001 Abstract, Claims 1 Fig. 1 - 4	1, 4

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search

27 JANUARY 2004 (27.01.2004)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2003/002181

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 2002-041999 A	5 JUNE 2002	NONE	
KR 20-0181839 Y	2 MARCH 2000	NONE	
JP 1-74682 U	19 MAY 1989	NONE	
KR 20-0250276 U	28 SEPTEMBER 2001	NONE	